Routers

AT-AR450S
Enterprise Class Security Router

AT-AR450S
1 x 10/100TX WAN port
1 x 10/100TX DMZ port
5 x 10/100TX LAN ports
2 asynchronous x RS232 ports

The AT-AR450S is an enterprise-class security router offering versatility, integration, performance and security for medium-sized business and enterprise networks.

The AT-AR450S is a versatile one-rack unit (1RU) security router designed to provide up to Seven 10/100 Fast Ethernet interfaces and 2 asynchronous (RS-232) ports, making it a first class choice for Enterprise Solutions.

One 10/100Mbps WAN (Eth 0) Ethernet Port is offered for a broadband connection to the WAN network and a 10/100Mbps Ethernet De-Militarised Zone (DMZ) (Eth1) Port provides a second local network publicly accessible from the Internet by authorised users. The AT-AR450S Security Router also comes with five Layer-2 switched LAN ports and two dial-up asynchronous ports.

The 2 asynchronous (RS-232) ports provide 115kbps dial-up for external modems to either backup the dedicated link or provide top-up bandwidth for the network link. Full modem control is supported and both asynchronous ports can be multi-linked with PPP for extra bandwidth.

Security

Allied Telesyn's high performance Stateful Inspection Firewall common to all routers and Layer 3 switches provides different levels of security to increase the overall security of business critical information. The AT-AR450S delivers up to 100Mbps of firewall throughput with the ability to handle over 18,000 simultaneous sessions. With on board hardware encryption the AT-AR450S offers DES, 3DES and AES (Advanced Encryption Standard) hardware encryption using up to 256 bit key code. The AT-AR450S has integrated hardware VPN acceleration delivering up to 65Mbps of 3DES VPN + NAT and Firewall throughput and up to 40Mbps of AES-256 VPN + NAT and Firewall throughput.

AES-Encrypted VPN

The AT-AR450S supports the advanced Encryption Standard (AES). AES is a Federal Information Processing Standard (FIPS 197) that specifies a cryptographic algorithm for use by U.S. Government organizations to protect sensitive, unclassified information. This is the most advanced encryption to open a secure VPN channel.

VPN IPsec

IPsec (Internet Protocol Security) is a set of protocols for security at the network or packet processing layer. Early approaches to security were performed at the application layer of the communications model. IPsec is critical for secure virtual private networks and for remote user access through dial-up connection to private networks. A key advantage of IPsec over earlier implementations is that security (encryption and authentication) can be easily applied without requiring changes to individual user computers.

There are two choices of security services with IPsec: Authentication Header (AH) and Encapsulating Security Payload (ESP).

AH provides authentication of the sender of data and ESP supports both authentication of the sender and encryption of data as well. The specific service information is inserted into the IP packet payload as a header. Separate key protocols can be selected, such as the ISAKMP protocol.

Key features

- Stateful Inspection Firewall
- AES, 3DES, DES Hardware based Encryption
- 512 IPSEC/ISAKMP VPN
- Intrusion Detection and Attack Alert System
- Support Windows XP, 2000 VPN clients using pre-shared keys and also using X509 Certificates
- MD5 / SHA
- L2TP
- PPPoE
- Protection against Denial of Service attacks
- PAP/CHAP user authentication
- RADIUS/TACAS+ look-up
- SMTP and HTTP Proxy
- SSH / SSL
- 802.1X*
- 5 Ethernet 10/100Mbps LAN Ports
- 1 Ethernet 10/100Mbps WAN Port
- 1 Ethernet 10/100Mbps DMZ Port
- 2 Async Ports

* Please check with your local sales representative for more information

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IEEE 802.1Q VLAN

The AT-AR450S Security Router is 802.1Q compliant. This enables the user to configure up to 64 VLANs with VLAN Identifier numbers (VID) between one and 4,094.

The 802.1Q specification establishes a standard method for inserting VLAN membership information into Ethernet frames. VLANs can span many switches. VLANs between switches are achieved by inserting a tag with a VID between one and 4,094 into each frame. A VID must be assigned for each VLAN. By assigning the same VID to VLANs on many switches, one or more VLANs (broadcast domains) can be extended across a large network.

The AT-AR450S can firewall between VLANs thus providing protection within the enterprise network from internal attacks.

Firewall

Allied Telesyn's state of the art Stateful Inspection Firewall provides a high level of security by providing full application-layer awareness without breaking the client/server model.

Allied Telesyn's Stateful Inspection Firewall:

- Offers per packet dynamic access control (stateful inspection) for all traffic reaching the firewall
- Protects against a wide range of Denial of Service (DOS) attacks, including Ping of Death, Smurf attacks, port scans, fragment attacks and IP Spoofing
- Sends automatic email alerts to initiate appropriate action

Triggered events and scripts

A trigger sets off an ordered sequence of scripts and router commands to be executed when a certain event occurs, providing a powerful mechanism for automating the execution of router commands in response to specific events. Each trigger may reference multiple scripts and any script can be used by any trigger.

Using this feature, the AT-AR450S can, for example, send an email alert to the network manager when trouble occurs, or it can automatically shut down an interface to protect against suspected attacks.

The scripting facility enables sequences of commands to be stored in a script and replayed at any time, allowing the AT-AR450S to be easily configured or quickly re-configured.

This is useful when developing a complex configuration, making the same configuration change to several different routers, Layer 3 switches or security appliances, or introducing a configuration change that must occur at a particular time. Scripts can be created on a PC and uploaded to the router, or they can be created using the router's own integrated text editor. Scripts can be activated either from the command line or from a trigger.

World class operating systems and management software

AlliedWare™ is Allied Telesyn's feature rich OS that serves as the foundation for its entire line of Layer 3 routers and switches. Robust and reliable, the AlliedWare™ OS offers a breadth of functionality for any application. AlliedWare™ is a common OS that ensures the AT-AR450S Security Router is able to interoperate seamlessly with other Allied Telesyn security appliances, fixed function, modular routers and Layer 3 switches, allowing operational investment protection for training, management and monitoring. A standards-based implementation assures full interoperability with all other major network equipment vendors.

The AT-AR450S Security Router is shipped "ready to run" with AlliedWare™, a comprehensive software suite that includes all the features, management capabilities and performance today's networks demand.

Feature licences give access to a set of progressive features:

- The Advanced Layer 3 Upgrade provides a set of the cutting edge protocols such as IPv6, BGP4 and Load Balancer

Graphical User Interface (GUI)

The AT-AR450S Graphical User Interface (GUI) allows for swift, pain free configuration and management.

The following major new features are incorporated in the AT-AR450S GUI:

- Easy configuration wizard for connection to the Internet
- PPP over Ethernet configuration and monitoring
- DHCP server configuration and monitoring
- Firewall configuration and monitoring, ability to view events, logs and device status
- IPsec configuration

AT-ViewPlus (Optional)

AT-ViewPlus is a Java-based device management solution from Allied Telesyn that provides a user-friendly, windows based environment to manage the AT-AR450S Security Router, as well as the complete line-up of Allied Telesyn managed devices. Whether managing a large network distributed across multiple sites or a small network with only a handful of nodes, AT-ViewPlus provides the tools needed to effectively monitor and proactively manage Allied Telesyn's intelligent networking products.

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HARDWARE FEATURES

CPU

The 400 MHz base CPU card supports

- 5 x 10/100 Ethernet Switch Ports for VLANs
- 1 x 10/100 Ethernet (ETH0) WAN Port
- 1 x 10/100 Ethernet (ETH1) DMZ Port
- 1 x Internal Hardware Security Accelerator

Ports

The AT-AR450S has multiple 10T/100TX ports

- 5 x 10/100Mbps half or full duplex Ethernet LAN ports
- 1 x 10/100Mbps half or full duplex Ethernet WAN port
- 1 x 10/100Mbps half or full duplex Ethernet DMZ port
- 2 x asynchronous (RS-232)

MDI/MDI-X

The WAN and DMZ ports are wired as MDI. The 5 LAN ports are wired as MDI-X. The 5 LAN ports also have MDI/MDI-X auto-crossover.

Main Memory - SDRAM

Expandable SDRAM support - 64MB, 128MB and 256MB of ECC SDRAM is provided on a single 168-pin DIMM, with a default DIMM size of 64MB fitted.

FLASH Memory

16MB used for software and configuration data storage.

Universal AC Power Supply

The AT-AR450S has a universal AC input connector and a power switch on its rear panel. The router requires a power input of 100-240 VAC at 50-60Hz.

Real Time Clock (RTC)

The RTC keeps track of current date and time. During times when the system has been powered down, a backup battery supplies power to the RTC.

RELIABILITY

System MTBF	90,000 hours min
PSU MTBF	150,000 hours min
Base MTBF	533,000 hours min

POWER CHARACTERISTICS

100-240vAC, 50 - 60Hz

ENVIRONMENTAL SPECIFICATIONS

Operating temp:	0°C - 40°C (32°CF - 104°F)
Storage temp:	-25°C - 70°C (-13°F – 158°F)
Relative humidity:	5 – 95% non-condensing

PHYSICAL CHARACTERISTICS

1U rack mount, Depth 190mm Width 305mm

Weight: 1.75 kg (3.75lbs)

ELECTRICAL/MECHANICAL APPROVALS

EMC:	Emissions: EN55022 class A, FCC class A ,VCCI class A, AS/NZS 'CISPR22 class A
Immunity:	EN55024
Safety:	UL60950, CAN/CSA-C22.2NO. 60950-00, EN60950
Listing:	UL, cUL, TUV

SOFTWARE FEATURES

Secure VPN option
ICSA Certified IPsec (AES, 3DES, DES, DES-MAC, MD5, SHA-1)
Stateful Inspection Firewall
Network Address Translation (NAT)
CLI, PAP and CHAP
RADIUS, TACACS
PKI for IKE/IPsec
SSL
SecureShell remote management
UPnP v1.0
Generic Routing Encapsulation
Dynamic IP address assignment
L2TP (Layer 2 Tunneling Protocol)
DHCP
PPPoE
IP packet filtering
IP multihoming
Demand IP and IPX
IPX/SPX spoofing
Spanning tree on Bridge Ports
BAP/BACP (Bandwidth Allocation Protocol)
PPP multilink
Callback
IP/IPX and bridge filtering
Advanced routing protocols OSPF, BGP4, RIP and RIPv2
Multicast protocols DvMRP, PIM-SM, PIM-DM
SNMP management v2c and SNMPv3
GUI
OSI
Load Balancer
IPv6
IP, IPX and AppleTalk routing
RSVP
VRRP
IP Packet prioritization
STAC data compression (s/w only)

STANDARDS AND PROTOCOLS

GENERAL ROUTING

RFC 1918 IP Addressing
RFC 791 IP
RFC 950 Subnetting, ICMP
RFC 1812 Router Requirements
RFC 1055 SLIP
RFC 1122 Internet Host Requirements
RFC 1582 RIP on Demand Circuits
"IPX Router Specification", v1.2, Novell, Inc., Part Number 107-000029-001
RFC 792 ICMP
RFC 1288 Finger
RFC 1701 GRE
RFC 1702 GRE over IPv4
RFC 2131 DHCP
RFC 1542 BootP
RFC 826 ARP
RFC 925 Multi-LAN ARP
RFC 3232 Assigned Numbers
RFC 2661 L2TP
RFC 2822 Internet Message Format
RFC 903 Reverse ARP
RFC 1027 Proxy ARP
RFC 793 TCP
RFC 768 UDP
RFC 1144 Van Jacobson's Compression
AppleTalk
ISO 9542 End System to Intermediate System Protocol
RFC 2390 Inverse Address Resolution Protocol
ISO 10589 Technical Corrigendums 1,2,3, ISO Intermediate System to Intermediate System
ISO 8473, relevant parts of ISO 8348/Add2, ISO 8648, ISO TR9577 Open System Interconnection
RFC 3022 Traditional NAT

OSPF

RFC 2328 OSPF Version 2
RFC 1245 OSPF Protocol Analysis
RFC 1246 Experience with the OSPF Protocol
RFC 1586 OSFP over Frame Relay
RFC 1793 Extending OSPF to Support Demand Circuits

AT-AR450S, Enterprise Class Security Router

BGP-4

RFC 1771 Border Gateway Protocol 4
RFC 3065 Autonomous System Confederations for BGP
RFC 1997 BGP Communities Attribute
RFC 1998 Multi-home Routing

IP MULTICASTING

RFC 2236 IGMP v2
IDMR DVMRP Draft IETF Distance Vector Multicast Routing Protocol V3-09
RFC 1812 Router Requirements
RFC 1112 Host Extensions
RFC 2715 Interoperability Rules for Multicast Routing Protocols

QUALITY OF SERVICE

RFC 1349 Type of Service in the IP Suite
IEEE 802.1p Priority Tagging
RFC 2205 Reservation Protocol
RFC 2211 Controlled-Load

RIP

RFC 1058 RIP v1
RFC 1723 RIP v2

MANAGEMENT

RFC 1155 MIB
RFC 1157 SNMP
RFC 1213 MIB-II
RFC 1643 Ethernet MIB
RFC 1657 Definitions of Managed Objects for BGP-4 using SMIv2
RFC 1493 Bridge MIB
RFC 2012 SNMPv2 MIB for TCP using SMIv2
RFC 2011 SNMPv2 MIB for IP using SMIv2
RFC 2096 IP Forwarding Table MIB
RFC 2338 VRRP
RFC 2576 Coexistence of SNMPv1, v2 & V3
RFC 2578 Structure of Management Information Version2 (SMIv2)
RFC 2580 Conformance Statements for SMIv2
RFC 2665 Definitions of managed objects for the Ethernet-like Interface Types
RFC 2790 Host MIB
RFC 2819 RMON (groups 1,2,3 and 9)
RFC 3410 Introduction to SNMPv3
RFC 3411 An Architecture (SNMP)
RFC 3412 MPD for SNMPv3
RFC 3413 SNMPv3 Applications
RFC 3414 USM for SNMPv3
RFC 3415 VACM for SNMPv3
RFC 3416 Protocol Operations for SNMP v2c & v3
RFC 3417 Transport Mappings for SNMPv3
RFC 3418 MIB for SNMP v2c & v3

SECURITY

RFC 2253 X500 String Representation of Distinguished Names
RFC 2459 PKI Internet X.509 Public Key Infrastructure Certificate and CRL Profile
RFC 2511 PKI Internet X.509 Certificate Request Message Format
RFC 2559 PKI Internet X.509 Public Key Infrastructure Operational Protocols – LDAPv2
RFC 2587 PKI Internet X.509 Public Key Infrastructure LDAPv2 Schema
RFC 2510 PKI Internet X.509 Public Key Infrastructure Certificate Management Protocols

RFC 2585 PKI Internet X.509 Public Key Infrastructure Operational Protocols: FTP and HTTP
PKCS #10 Certificate Request Syntax Standard
Draft-IETF-PKIX-CMP-Transport-Protocols-01
RFC 1492 TACACS An Access Control Protocol
RFC 959 FTP File Transfer Protocol
RFC 1413 IDP Identification Protocol
Draft-ylonen-ssh-protocol-00.txt
RFC 2865 Radius
RFC 2866 Radius Accounting

ENCRYPTION

FIPS 46 DES Data Encryption Standard
FIPS 197 AES Advanced Encryption Standard
FIPS 180 SHA-1 Secure Hash Algorithm
FIPS 186 RSA public key algorithm
RFC 2104 HMAC Keyed-Hashing for Message Authentication

IPSEC

RFC 2395 LZS IP Payload Compression Using LZS
RFC 2401-2412 Security Architecture for IP
RFC 1829 ESP DES-CBC Transform
RFC 2766 NAT-PT
RFC 3173 IPComp – IPsec compression

IPv6

RFC 1886 DNS Extensions to support IPv6
RFC 1981 Path MTU Discovery for IPv6
RFC 2362 PIM-SM
RFC 2375 IPv6 Multicast Address Assignments
RFC 2460 IPv6
RFC 2080 RIPng for IPv6
RFC 2373 IPv6 Addressing Architecture
RFC 2461 Neighbour Discovery for IPv6
RFC 2462 IPv6 Stateless Address Autoconfiguration
RFC 2463 ICMPv6
RFC 2464 Transmission of IPv6 Packets over Ethernet Networks
RFC 2472 IPv6 over PPP
RFC draft-vida-mid-v2 Multicast Listener Discovery (MLD) for IPv6
Draft-ietf-pim-dm-new-v2-02 PIM-DM
Draft-ietf-pim-sm-v2-new-05 PIM-SM
Draft-ietf-pim-ipv6-03 PIM
Draft-ietf-ngtrans-introduction-to-ipv6-transition-06 An overview of the introduction of IPv6 in the Internet
Draft-arkko-manual-icmpv6-sas01 Manual SA Configuration for IPv6 Link Local Messages
RFC 2526 Reserved IPv6 Subnet Anycast Addresses
RFC 2711 IPv6 Router Alert Option
RFC 3056 Connection of IPv6 Domains via IPv4 Clouds

SERVICES

RFC 2821 SMTP
RFC 2049 MIME
RFC 1945 HTTP/1.0
RFC 1985 SMTP Service Extension
RFC 1305 NTP v3
RFC 1510 Network Authentication
RFC 2156 PPPoE
RFC 854, 856-858, 1091 Telnet
RFC 932 Subnetwork addressing scheme
RFC 1350 TFTP
RFC 1179 Line printer daemon protocol

SSL

RFC 2246 The TLS Protocol Version 1.0
Draft freier ssl version 3.02 SSLv3Secure Sockets Layer

ETHERNET

IEEE 802.1D-1990
IEEE 802.2 – 1985
IEEE 802.3 – 1985
IEEE 802.3 AC, U, X, – 1998
RFC 894 Ethernet II Encapsulation
IEEE 802.1Q VLAN Tagging

CUSTOMER SUPPORT

- Extensive and responsive global support network
- Backed by Allied Telesyn's expert technical support team
- Range of service contract options
- Training available in many locations

Allied Telesyn is committed to providing high-quality and responsive technical support services to our customers. In partnership with our authorised distributors and resellers, we provide an extensive global support network covering the entire Allied Telesyn range from media converters to our most sophisticated switching products.

Ordering information

AT-AR450S-xx

High performance security

Where xx =
10 for U.S. power cord
20 for no power cord
30 for U.K. power cord
40 for Australian power cord
50 for European power cord

Options

AT-AR400-ADVL3UPGRD
Advanced Layer 3 Upgrade including IPv6, BGP4, Loadbalancer

AT-AR-AES
AES feature license

AT-AES/3DES
AES and 3DES bundled feature license

AT-AR450S OS
Operating system upgrade

Only nature can do better

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